AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A method for melting vitrifiable materials~~, in particular for the production of vitreous mosaic materials and ceramic frits as well as for the vitrification of waste, where the primary material must be frequently changed~~, comprising the ~~following~~ steps of:

- providing a melting tank having a floor and side walls made of refractory material for containing a molten bath, with a predetermined head and at least one channel for discharging ~~the~~ molten materials from the molten bath;

- introducing a primary batch of vitrifiable materials into said tank via an entry mouth thereof;

- providing, inside said tank, a plurality of electrodes having a predetermined shape and length, said electrodes having a substantially constant cross-section over their entire length and being so positioned as to melt completely said vitrifiable materials by means of diffused electric currents;

- depositing a covering layer of vitrifiable materials in the solid state onto the upper surface of said molten ~~batch~~ bath so as to contain the dispersion of heat from the bath and screen the ~~crown~~ upper surface of the furnace;

~~wherein said electrodes are positioned so as to rest at the same level on said floor over their entire length to reduce to a minimum the head of the molten bath, with a consequent reduction in the time required to change the primary batch and the power consumption.~~ wherein said electrodes have one longitudinal end rigidly secured to a side wall of the tank and the other longitudinal end in contact with the opposite side wall.

2. (Previously Presented) The method according to Claim 1, wherein the volume of the primary batch is limited by containing said head within predetermined values depending on the diameter of the electrodes.

3. (Previously Presented) The method according to Claim 2, wherein said head is kept within values which are between twice and six times the average diameter of the electrodes, with said average diameter being between 1" and 2".

4. (Currently Amended) The method according to Claim 3, wherein the ~~floor surface area of the melting tank and the average specific gather of vitrifiable materials are so selected that the~~ power consumption is kept less than or equal to 0.6 kWh for each kilogram of glass produced.

5. (Currently Amended) An electric furnace comprising:

- a melting tank for containing a molten bath with a floor, side walls, channels for discharging ~~the~~ molten materials from the molten bath;

- means for introducing into said tank a primary batch of vitrifiable materials and for depositing a covering layer on the molten bath having a predetermined head;

- a plurality of electrodes situated inside said tank so as to melt and keep in the molten state said vitrifiable materials by means of diffused electric currents, said electrodes having an overall length and a substantially constant cross-section over said length and a predetermined position;

- a crown situated above said floor, all said electrodes being so positioned inside the tank to substantially rest at the same level on said floor so as to reduce to a minimum the head of the molten bath, with a consequent reduction in the time required to change the primary batch and the power consumption

wherein said electrodes have one longitudinal end rigidly secured to a side wall of the tank and the other longitudinal end in contact with the opposite side wall.

6. (Previously Presented) The furnace according to Claim 5, wherein said electrodes are substantially cylindrical and straight and are arranged substantially parallel to each other.

7. (Currently Amended) The furnace according to Claim 5, wherein said electrodes ~~have one longitudinal end rigidly secured to a side wall of the tank and the other longitudinal end in contact with the opposite side wall so as to be~~ are slightly compressed or tensioned at the tip.

8. (Currently Amended) The furnace according to Claim ~~7~~ 5, wherein the distance between said electrodes is selected so as to optimize the distribution of the electric current inside the molten bath.

9. (Currently Amended) The furnace according to Claim 5, wherein the side wall of said tank has a minimum height which is greater than the ~~maximum value of the head plus the maximum thickness of said covering layer~~ a combined height of the molten material and said primary batch deposited thereon.

10. (Previously Presented) The furnace according to Claim 9, wherein said minimum height of the side walls of the tank is between 35 and 60 cm with the diameter of said electrodes between 1" and 2 ½".

11. (Previously Presented) The furnace according to Claim 10, wherein said minimum height is between 40 and 60 cm with the diameter of said electrodes between 1" and 2 ½".

12. (Currently Amended) The furnace according to Claim ~~8~~ 5, wherein said discharge channels extend in said floor at least partially underneath the level of said electrodes to prevent ~~these latter~~ the electrodes from hindering the flowing out of the molten bath.

13. (Currently Amended) The furnace according to Claim ~~12~~ 5, wherein said discharge channels comprise at least one main receiving

canal connected to the outside of the furnace by means of a discharge gully.

14. (Previously Presented) The furnace according to Claim 13, wherein said discharge channels comprise a plurality of secondary receiving canals connected to said main canal.

15. (Previously Presented) The furnace according to Claim 13, wherein said main and secondary canals are transverse to each other and extend completely underneath said electrodes.